Journal of Microscopy

1988. Vol. 149 Contents and Indices

Joint Editors: C. V. Howard, R. M. Glaeser,
Audrey M. Glauert, D. C. Joy, W. M. Stobbs

EDITORIAL ADVISORY BOARD

J. R. Garrett, U.K.
J. S. Ploem, Netherlands
B. C. Cowen, U.K.
J. Little, U.K.

B. Afzelius, Sweden
R. Barer, U.K.
A. Boyde, U.K.
S. Bradbury, U.K.
Ruth Bulger, U.S.A.
Gillian Bullock, U.K.
J. N. Chapman, U.K.
D. J. H. Cockayne, Australia
V. E. Cosslett, U.K.
A. V. Crewe, U.S.A.
A. G. Cullis, U.K.
*P. Echlin, U.K.
H. E. Exner, West Germany

C. Fiori, U.S.A.
D. T. Grubb, U.S.A.
G. H. Haggis, Canada
T. A. Hall, U.K.
A. Howie, U.K.
*D. E. Johnson, U.S.A.
J. V. P. Long, U.K.
M. H. Loretto, U.K.
*G. W. Lorimer, U.K.
D. E. Newbury, U.S.A.
*A. J. Morgan, U.K.
*T. F. Page, U.K.
H. Piller, West Germany
M. Pluta, Poland
B. Ralph, U.K.
*A. W. Robards, U.K.
F. W. D. Rost, Australia
J. D. Shelburne, U.S.A.
*R. Shimizu, Japan

U. B. Sleytr, Austria
*D. J. Smith, U.S.A.
K. Tanaka, Japan
*H. J. Tanke, Netherlands
B. F. Trump, U.S.A.
E. R. Weibel, Switzerland
*D. B. Williams, U.S.A.
M. A. Williams, U.K.

Representatives for the International Society for Stereology
J.-L. Chermant (I.S.S. President), France
A. J. Baddeley, Australia
*L. M. Cruz-Orive, Switzerland
H. J. G. Gundersen, Denmark
C. Lantuéjoul, France
*J. P. Rigaut, France

*Associate Editor

Journal Executive Secretary: VERONICA ROBERTS

Published for the Royal Microscopical Society
by Blackwell Scientific Publications
Oxford London Edinburgh Boston Melbourne Palo Alto

Journal of Microscopy

Patron: HER MAJESTY THE QUEEN

Officers and Council 1987–88

President: J. S. PLOEM

Vice-Presidents: GILLIAN BULLOCK
A. HOWIE

Executive Hon. Secretary: J. LITTLE

Hon. Treasurer: B. C. COWEN

Hon. Secretary (Education): D. J. JOHNSON

Hon. Secretary (Science): H. Y. ELDER

Ordinary Members of Council:

J. E. BEESLEY
B. BRACEGIRDLE
G. A. D. BRIGGS
A. G. CULLIS
M. ISABEL FILIPE
D. J. GOLDSTEIN
P. J. HIGHTON
R. W. HOROBIN
JULIA KING
T. F. PAGE
D. M. SHOTTON
N. G. WRIGLEY

Hon. Joint Editors:

C. V. HOWARD
R. M. GLAESER
AUDREY M. GLAUERT
D. C. JOY
W. M. STOBBS

Administrator: P. G. FLEMING

Copyright. Papers accepted become the copyright of the journal (© 1988 The Royal Microscopical Society). Authorization to photocopy for internal or personal use or the internal or personal use of specific clients is granted by The Royal Microscopical Society for libraries and other users registered with the Copyright Clearance Centre (CCC) Transactional Reporting Service, provided that the stated base fee of $03.00 per copy is paid directly to the CCC, 27 Congress Street, Salem, MA 01970, U.S.A. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Special requests should be addressed to the Editor. 0022-2720/88 $03.00.

Contents of Vol. 149

Part 1

G. Van Tendeloo, J. Van Landuyt, S. Amelinckx and S. Ranganathan. Quasi-crystals and their crystalline homologues in the $Al_{60}Mn_{11}Ni_4$ ternary alloy 1

Michel Jourlin and Jean-Charles Pinoli. A model for logarithmic image processing 21

Theresa A. Fassel and Sek-Wen Hui. Quantitative analysis of intramembranous particles in rapidly frozen 10T1/2 cell monolayers 37

T. Wilson and A. R. Carlini. Three-dimensional imaging in confocal imaging systems with finite sized detectors 51

H. Shuman. Contrast in confocal scanning microscopy with a finite detector 67

Short Technical Notes

C. J. R. Sheppard. Depth of field in optical microscopy 73

Espen Stang. Modification of the LKB 7800 series KnifeMaker for symmetrical breaking of 'cryo' knives 77

Book Review 81

Part 2

Renée Panozzo Heilbronner. Distortion of orientation data introduced by digitizing procedures 83

M. Pluta. Variable wavelength microinterferometry of textile fibres 97

W. Boguth and H. Piller. The influence of the aperture of illumination on the accuracy of microscope-photometric measurements of internal transmittance 117

R. S. Hill, W. J. Myring, D. T. Clarke and C. J. Veltkamp. Soft X-ray contact imaging of nucleolar chromatin using synchrotron radiation: a comparative scanning and transmission electron microscope study 127

J. P. Kroustrup, H. J. G. Gundersen and M. Væth. Stereological analysis of three-dimensional structure organization of surfaces in multiphase specimens: statistical methods and model-inferences 135

S. D. Davilla, P. Ingram, A. LeFurgey and M. K. Lamvik. Real-time graphics display of mass variation or elemental concentration during electron beam micro-analysis using a general purpose computer 153

Short Technical Note

GEORGE FARRANTS, ALBRECHT REITH, BARBARA SCHÜLER and KARI FEREN. A simple, direct method for the collection of particles from air samples for transmission electron microscopy and digital image analysis 159

Book Reviews 165

Part 3

TETSUROU TAKAMATSU and SETSUYA FUJITA. Microscopic tomography by laser scanning microscopy and its three-dimensional reconstruction 167

MASANORI SUZUKI, TOHRU TAKAHASHI and KIYOAKI OHUCHI. Three-dimensional reconstruction of semi-gross biostructures using 'macroserials'—1-mm-thick serial organ slices 175

C. W. ANDERSON, ERIKA JUNGER and M. A. WILLIAMS. Autoradiographic line-spread distributions for iodine-125 185

ANDREW W. ROGERS and MASAHITO WATANABE. The relative sensitivities of autoradiographic emulsions to negative chemography 193

ROBERT LL. DAVIES, NICOLA WORRILL, IVOR D. BOWEN, TIMOTHY J. HARRISON and KENNETH T. EVANS. A technique for studying the development, metamorphosis and morphology of insects, using projection X-ray microscopy 199

A. D. STEAD, T. W. FORD, W. J. MYRING and D. T. CLARKE. A comparison of soft X-ray contact microscopy with light and electron microscopy for the study of algal cell ultrastructure 207

T. E. BOSTROM, A. Z. GYORY, D. C. BENSON, E. HORGAN, C. E. NOCKOLDS, F. X. BECK and D. J. H. COCKAYNE. Energy-dispersive X-ray microanalysis of air-dried microdroplets containing a macromolecular solute 217

ŽELJKO JERIČEVIĆ, DOUGLAS M. BENSON, JOSEPH BRYAN and LOUIS C. SMITH. Geometric correction of digital images using orthonormal decomposition 233